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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,363	08/02/2001	Christopher J. Manning	CM 080201	7779

7590

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EXAMINER

CONNOLLY, PATRICK J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/922,363

Applicant(s)

MANNING, CHRISTOPHER J.

Examiner

Patrick J Connolly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

New corrected drawings are required in this application because the drawings included not of draft quality. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

Claims 1-16 are objected to because of the following informalities: each claim 1-16 should end in a period (".") instead of a semi-colon (";"). Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "1 cm-1" in line 2. This is an unclear dimensional measurement.

Claim 11 recites the limitation "the diode laser" in line 1. There is insufficient antecedent basis for this limitation in the claim.

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Claim 13, recites the limitation "the transfer functions" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 14, recites the limitation "the transfer function" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 15-17 recite the limitation "using the response to a probe signal" in line 2. There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,963,322 to Rapp et al. (hereafter Rapp).

As to claim 1, Rapp teaches an optical spectrometer including (see Figure 1):

a source of a primary beam of radiant energy (5);

a beamsplitter fixed in relation to the primary beam (4);

a reference laser coupled to the spectrometer (11);

at least one return reflector for reflecting the first beam back to the beam splitter (2 or 3);

at least one radiant energy detector (6 or 12);

a control, data acquisition and processing electronic system (14, 15, 16, 17).

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While Rapp teaches using a HeNe laser as a reference source, solid-state lasers are well known in the art and are art recognized as functional equivalents of HeNe laser sources. It would have been obvious to one of ordinary skill in the art at the time of invention to include, passing said laser first through a filter.

With further regard to the filter of claims 1 and 4, etalons are notoriously well known optical filters and it would have been obvious to one of ordinary skill in the art to include such a filter in the apparatus of Rapp.

With further regard to the solid-state laser sources of claims 1, 5 and 6, VCSEL's are well known solid-state laser devices and it would have been obvious to one of ordinary skill in the art to substitute such a device for the HeNe laser of Rapp. Further it would have been obvious to one of ordinary skill in the art at the time of invention to choose an appropriate linewidth for the reference laser device.

Claims 2, and 7-9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,963,322 to Rapp as applied to claims 1, 4 and 11-17 above, and further in view of U.S. Patent No. 5,949,543 to Bleier et al. (hereafter Bleier).

As to claim 2, Bleier teaches a monolithic optical assembly for use in spectrometers including a roof reflector rigidly coupled to a beamsplitter for the purpose of folding a beam by and angle (see Figure 7). It would have been obvious to one of ordinary skill in the art at the time of invention to include the optical assembly of Bleier in the spectrometer of Rapp.

As to claims 7 and 8, wire EDM and ceramic fabrication methods are well known methods in the art for mirror manufacturing. While Bleier does not teach these methods

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specifically, it would have been obvious to one of ordinary skill in the art at the time of invention to manufacture the roof-reflector assembly of Bleier in such a manner.

As to claim 9, replication is a well known method in the art for reflective coating preparation. While Bleier does not teach these methods specifically, it would have been obvious to one of ordinary skill in the art at the time of invention to coat the roof-reflector assembly of Bleier in such a manner.

As to claim 11, while Rapp does not specifically teach demodulating the reference signal, it is well known in the art to do so in order to correct the signal, and it would have been obvious to one of ordinary skill in the art at the time of invention to perform demodulation (for similar signal correction see col. 6, lines 28-48).

As to claim 12, while Rapp does not teach an additional light source for probing transfer functions of the detectors, it is notoriously well known in the art to do so and it would have been obvious to one of ordinary skill in the art at the time of invention to include an additional light source to do so.

As to claim 13, Rapp teaches filtering algorithms for the detector signal that could include the inversion of the detector transfer function (see col. 6, lines 28-48).

As to claim 14, Rapp teaches detecting an optically subtracted beam (see col. 7, lines 30-40, subtraction of DC offset)

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,963,322 to Rapp as applied to claims 1, 4, 11-17 above, and further in view of U.S. Patent No. 4,743,114 to Crane, Jr. (hereafter Crane).

As to claim 3, Crane teaches a compensating plate (in the form of a Fabry Perot etalon) scanned by nutation (see Figure 5).

Rapp teaches varying optical path length by moving a mirror. Rapp also teaches a digital compensation filter (see Figure 1, 7). While Rapp does not teach varying path length by scanning a compensator plate by nutation, it would have been obvious to one of ordinary skill in the art at the time of invention to include the compensator plate of Crane in the spectrometer of Rapp.

As to claim 10, it well-known in methods of optical path correction and variation to modulate one or both paths in a Michelson interferometer arrangement, and it would have been obvious to include two of the plate assemblies of Crane in the spectrometer of Rapp.

As to claims 15-17, Rapp teaches modifying detector signals for non-linearity (see col.7)

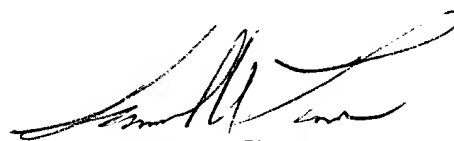
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 703.305.4397. The examiner can normally be reached on 9 am-5.30 pm ... Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703.308.4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703.746.7722 for regular communications and 703.746.7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0956.

pjc
March 6, 2003



Samuel A. Turner
Primary Examiner